

# Student-Built Drifters Aid NOAA's Gulf Response



Students from the Dauphin Island Sea Lab in Alabama preparing to deploy their drifters into the Gulf of Mexico earlier this summer.

[High resolution](#) (Credit: Monty Graham, Dauphin Island Sea Lab)

When Jim Manning started working a decade ago with New England lobstermen to learn more about water temperatures and circulation patterns in the Gulf of Maine, he had no idea the fruits of his labor would also aid in tracking the movement of the oil from the Deepwater Horizon/BP spill in the Gulf of Mexico.

Manning, an oceanographer at the [Woods Hole Laboratory](#) at NOAA's Northeast Fisheries Science Center, started the Environmental Monitors on Lobster Traps, or [eMOLT](#), program in 2000. eMOLT helps lobstermen understand the processes that cause lobster larvae and other planktonic plants and animals to drift and settle on the ocean floor by tracking a variety of data including surface currents in the ocean.

"We desperately needed these observations to validate our ocean circulation computer models, and the fishermen were more than willing to deploy and recover instrumentation," recalls Manning. "To make it happen, we developed low-cost instruments that were easy to use, and partnered with students at local colleges like Southern Maine Community College to build them."



NOAA logs the movements each drifter in the Gulf of Mexico over time, providing continuous readings of surface water current patterns.

[High resolution](#) (Credit: NOAA)

## NOAA Drifters Go with the Gulf's Flow

Following the Deepwater Horizon/BP oil spill, Manning recognized his drifter's potential to follow the movement of water and oil in, and possibly out of, the Gulf of Mexico. After conferring with NOAA's Atlantic Oceanographic and Meteorological Lab in Miami, Fla., to determine the viability of using these drifters, he held a "drifter construction party" in his backyard over Memorial Day weekend, where he invited local high school and college students to come and earn some extra money in the process.

"While the size and shape of the drifters conform to an oceanographic research standard designed decades ago to follow the surface currents, we construct them with materials from our local plumbing stores and lumber yards," said Manning.

The drifters are built to simple specifications: each has a 4-foot vertical "mast," made of PVC pipe or wood, and 4-foot horizontal fiberglass rods that support four vinyl cloth "sails" that rest beneath the sea surface. Fishermen's net buoys are used for flotation.

The submerged sails harness the currents and move the drifter through the water similar to how a kite or balloon rides the air currents.

"It is the least expensive, easiest to make and most environmentally friendly drifter of its kind," said Manning.



Over the side: Students from the Dauphin Island Sea Lab in Alabama deploy a surface drifter into the Gulf of Mexico.

[High resolution](#) (Credit: Monty Graham, Dauphin Island Sea Lab)

## Tracking Currents

The drifter communicates its position every four hours via a satellite transmitter much like a handheld GPS device. The transmitter, mounted on top of the mast, is typically the only part of the drifter exposed to the wind.

The location of each drifter can be logged over time, thus indicating surface current patterns. The tracks are updated on the [NEFSC website](#) minutes after each reported position. The data is also routinely accessed by NOAA research partners, such as physical oceanographers at the University of South Florida (USF) [who are tracking a number of drifters](#) deployed along the Gulf Coast.

"The collective drifter data are being used by many researchers to help validate ocean circulation models," said Manning. "This is how NOAA's Integrated Ocean Observing System [[IOOS](#)] is designed to work."

### **Making Their Way Into the Hands of Scientists and Oceanographers**

All of the student-built drifters have been shipped to research organizations in the Gulf of Mexico or put aboard research vessels headed to the region, including four deployed from the NOAA ship, *Delaware II*, now conducting fisheries research in the Gulf.

In all, 29 drifters have been deployed in the Gulf of Mexico for a variety of oil-spill related research projects. Some were used recently by University of South Florida (USF), Dauphin Island Sea Lab, NOAA's Atlantic Oceanographic and Meteorological Laboratory, and Woods Hole Oceanographic Institution scientists working aboard the University of Rhode Island's ship [Endeavor](#).

"Having local high school and college students construct the drifters helps keep costs of the units low; it also gives students an introduction to physical oceanographic processes and a chance to participate in relevant scientific research," said Manning. "Twenty-seven research and academic organizations now use these student-built drifters, and the number is growing. I hope to have them deployed on a routine basis someday as part of NOAA's IOOS."